

Exhibit 16

ORIGINAL ARTICLE

Reconsidering Bellwether Locations in U.S. Presidential Elections

JAMES G. GIMPEL, ANDREW REEVES, and SEAN TRENDE

We examine the notion of a “bellwether” location in the electoral political context. Bellwethers are thought to have predictive power because they supposedly signal how the entire electorate will move on election day. We consider how the number of bellwether counties—defined in several ways—has fluctuated since the 1930s. We also explore the extent to which bellwethers successfully predict future elections. With the proliferation of geographic polarization, few counties can successively and successfully pick the winner of presidential elections. Other bellwether measures fare slightly better or worse, but as Tufte and Sun (1975) found nearly half a century ago, bellwethers today continue to be poor predictors of future performance.

Electoral bellwethers are thought to be places that can predict the political direction of the rest of the nation consistently across numerous elections, presumably despite changes in both local and national conditions. The concept of a “bellwether” case refers to particular instances that have predictive power for a broader population (Matsumoto 2021; McCormick 2020). The idea has applications across many disciplines, including biology (Peterson and Martínez-Meyer 2008), climate studies (Huebert et al. 2012), medicine (Hanna et al. 2020; Rosenbaum and Maine 2019), finance (Bonsall, Bozanic, and Fischer 2013; Tseng 2015), computer science (Chen et al. 2009), and law (Fallon 2021; Fallon, Grabill, and Wynne 2008; Lahav 2008, 2018).

We examine the persistence and durability of bellwether counties across many presidential elections. Commentators heightened their attention to bellwethers in the aftermath of the 2020 election. The week after election day 2020, the *Wall Street*

James G. Gimpel is a professor of government at the University of Maryland, College Park. His research and teaching interests include elections, political behavior, public opinion, and political geography. Andrew Reeves is director of the Weidenbaum Center and a professor of political science at Washington University in St. Louis. He is the coauthor of *The Particularistic President: Executive Branch Politics and Political Inequality* and *No Blank Check: The Origins and Consequences of Public Antipathy towards Presidential Power*. Sean Trende is a Ph.D. candidate in political science at the Ohio State University. He studies U.S. elections and is senior elections analyst for RealClearPolitics.

Journal's John McCormick noted that the closeness of the election coupled with local polarization had wiped out 18 of the 19 bellwether counties that had voted on the winning side since 1980.¹

Some raised questions about how unusual it was for so many bellwethers to fall and if such an oddity might signal something like the occurrence of election fraud, which it did not (for an overview, see Eggers, Garro, and Grimmer 2021). Aside from predictive power, the prevalence of bellwethers is intriguing because they may somehow be uniquely descriptive of the electorate writ large. Particular constituencies in these locales might move back and forth across election cycles, siding with the winning party's candidate or at least moving uniformly in the winner's direction. Such locales are distinct from those in which constituencies reliably favor the same party's candidates regardless of shifting national tides.

The controversies and curiosities around bellwethers raise fundamental questions: How regularly do bellwethers emerge, and how many elections do these bellwether locations typically endure? How has the tightening of presidential elections altered the emergence and persistence of bellwethers? And does past performance as a bellwether predict future electoral outcomes?

Defining Bellwethers

We begin by reviewing definitions of electoral bellwethers in Tufte and Sun (1975). First is the most conventional definition of the all-or-nothing bellwether: counties that have a consistent record of voting for the winner in presidential elections for some number of consecutive elections. This definition is the most familiar one. If a county can consistently side with the presidential winner across a 12-, 16-, or 20-year or longer period, then it is probably sufficiently distinctive to merit further investigation.

For the all-or-nothing bellwether, it is not simply a matter of how often the presidency changes hands. Consider the 10 elections over the 36 years from 1920 to 1956, which saw Republicans and Democrats each win the presidency five times. These elections saw substantial national swings amidst the Great Depression and World War II, which usually produced decisive elections. The Republican victories of Warren Harding, Calvin Coolidge, Herbert Hoover, and Dwight Eisenhower were landslides in the Electoral College, seeing the GOP candidates win between 72% and 86% of the electoral vote. In this period, it is possible to imagine many Republican counties that supported FDR in response to the Great Depression and then supported Eisenhower in 1952 and 1956. During these 10 elections, over 7% of all counties selected the national winner at every election—a substantial number especially considering recent trends.

By 1980, reviewing the 10 previous elections shows that just 25 counties managed to land on the winning side every time. Figure 1 shows their locations; more prominently among them are Los Angeles County, California (Los Angeles), New Castle

¹The etymological origin of the term derives from shepherding, where the lead sheep would have a bell around its neck. The shepherd can determine the flock's movement even when it is not in visual range.

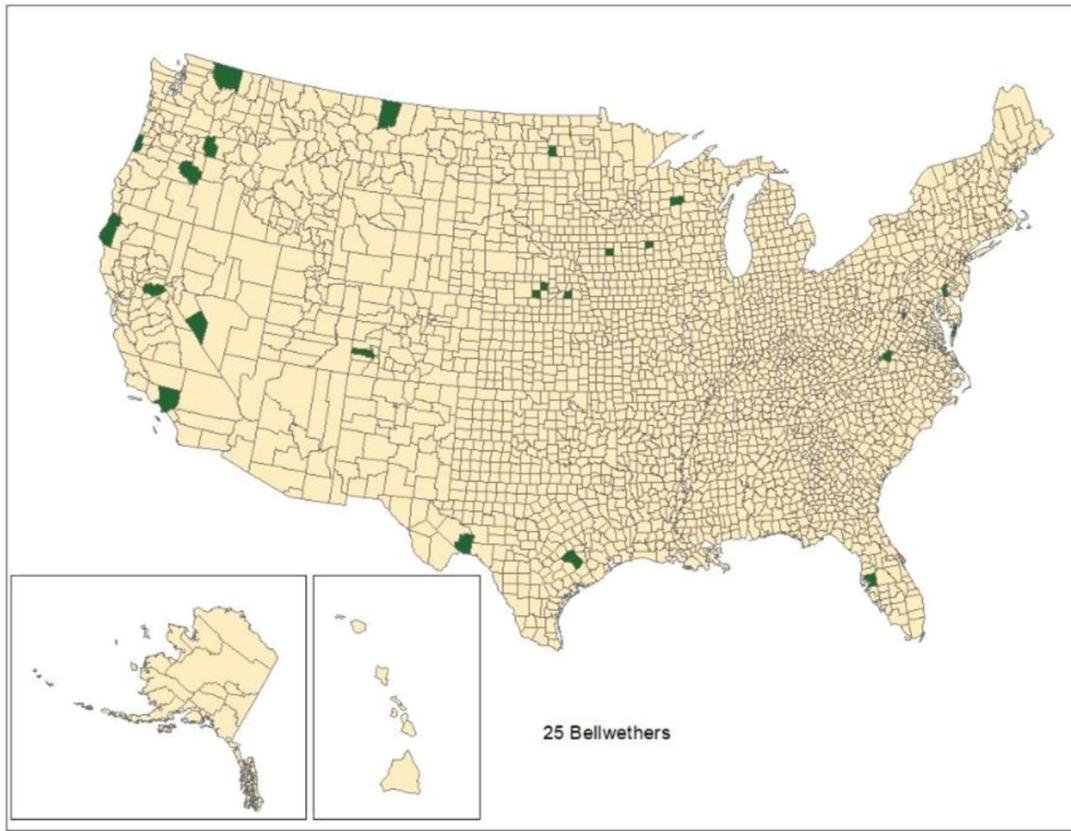


FIGURE 1. Ten-Election Bellwether Locations as of November 1980, $N = 25$.

County, Delaware (Wilmington), and Hillsborough County, Florida (Tampa) (see Figure 1)—all containing cities of considerable size.

Looking back 10 elections from November 2000 shows 81 counties (2.6% of the total) qualifying as bellwethers (Figure 2). Their presence in the border and midwestern states is noteworthy, with concentrations scattered across Missouri, Ohio, West Virginia, and North Carolina (see Figure 2). Most of these are small, though two larger cities in North Carolina are included in Buncombe (Asheville) and Guilford (Greensboro) counties.

Finally, there are the 10 elections between 1984 and 2020 in which Democrats and Republicans evenly split the elections. This period saw close national and Electoral College victories, with two winners of the electoral vote failing to garner a plurality of the popular vote (G. W. Bush 2000, Trump 2016). Increasingly few places sided with George W. Bush twice, then Barack Obama twice, then Donald Trump, and then Joe Biden—not to mention supporting Ronald Reagan and George H. W. Bush. As voting patterns become entrenched with individual and geographic polarization, this type of political fluctuation is rare. Indeed, only a single bellwether county—Clallam County, Washington—

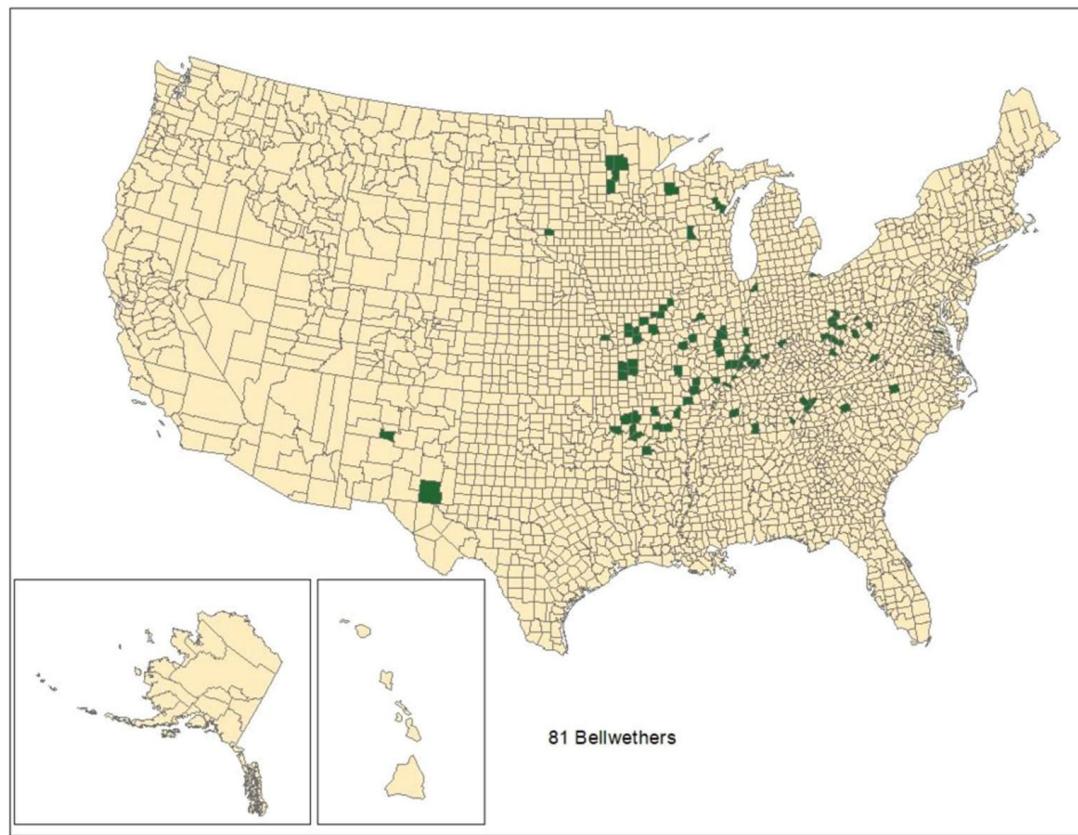


FIGURE 2. Ten-Election Bellwether Locations as of November 2000, $N = 81$.

correctly selected the Electoral College winner of the 10 presidential elections from 1984 to 2020 (Figure 3).

Figure 4 illustrates the striking variability in the percentage of counties voting for the Electoral College winner over time.² In the figure, we indicate whether the winner of the Electoral College vote was a Republican (“R”) or Democrat (“D”). This measure is the building block for the all-or-nothing bellwether since it shows how many counties picked the winner in each election. In 2020, Joe Biden won the Electoral College with a record low 17% of counties contrasted with Trump's 83%. While Bill Clinton won 49% of counties in both races, his geographic success has been an aberration for Democratic presidential candidates since 1980. Since then, excluding 1992 and 1996, Republicans have won between 71% and 89% of all counties, while Democratic candidates have won between 11% and 28% of counties. Counties, of course, are not voters, and this pattern largely reflects the concentration of Democratic voters in urban counties and the drift of rural counties toward Republicans (Gimpel et al. 2020; Rodden 2019). The upshot is that the widening urban–rural divide has imposed a

²Our analysis is based on county-level presidential election results from Algara (2021) and Leip (2022).

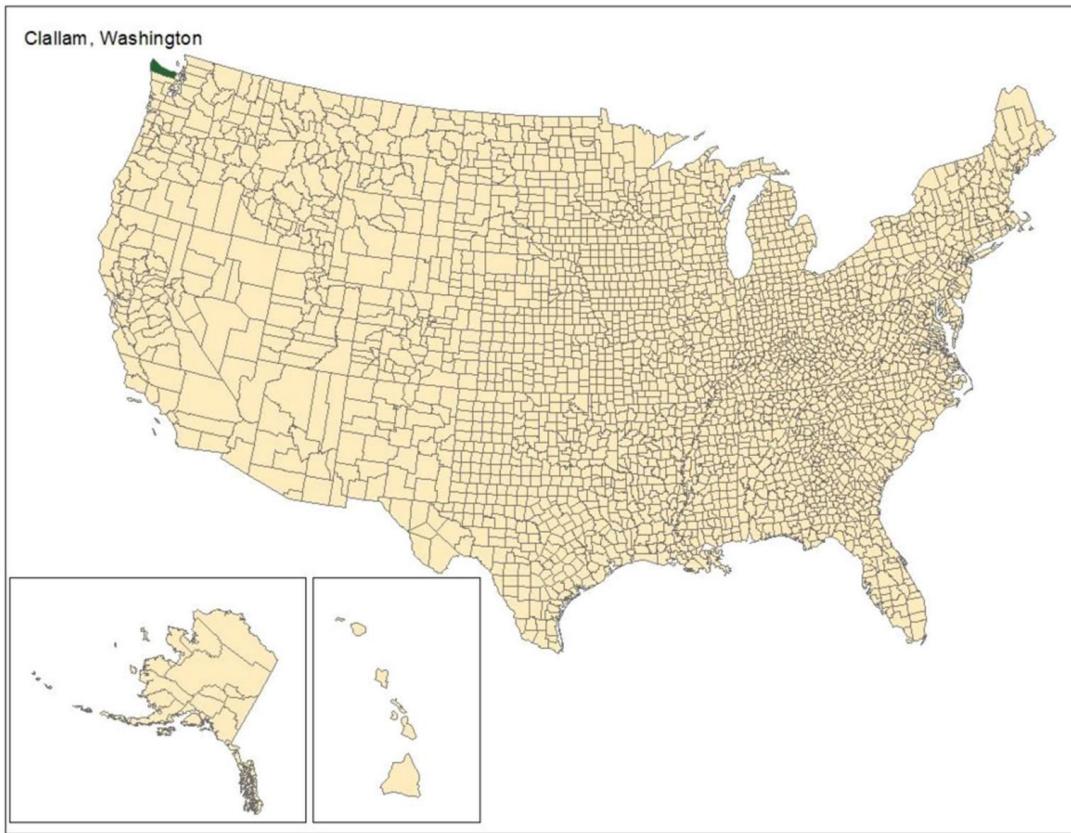


FIGURE 3. The Lone Ten-Election Bellwether Location as of November 2020, $N = 1$.

decisive limit on the number of potential bellwether counties. Biden's 2020 victory was historic in its geographic narrowness, diminishing the number of bellwethers (Eggers, Garro, and Grimmer 2021).

The second definition of bellwether ties performance to how close a county came to the national division of the vote—described as a barometric bellwether (Tufte and Sun 1975, 11). By this definition, a bellwether consistently falls within 2.5 points of the national two-party percentage of the vote. For example, Vigo County, Indiana, which sits on the state's western border with Illinois and is home to Terre Haute, met this criterion from 1968 to 1996. Figure 5 shows how the Democratic margin of the two-party vote in Vigo County (depicted with triangles and a dashed line) closely matches the national pattern (depicted with circles and a solid line).

In a previous analysis, Tufte and Sun (1975, 12, table 4) found that, across the eight elections between 1936 and 1964, 35 counties fit this barometric criterion, 14 (40%) of which went on to predict the 1968 vote within 2.5 points, and another 10 (29%) came within 5 points. However, prospective predictions are still poor.

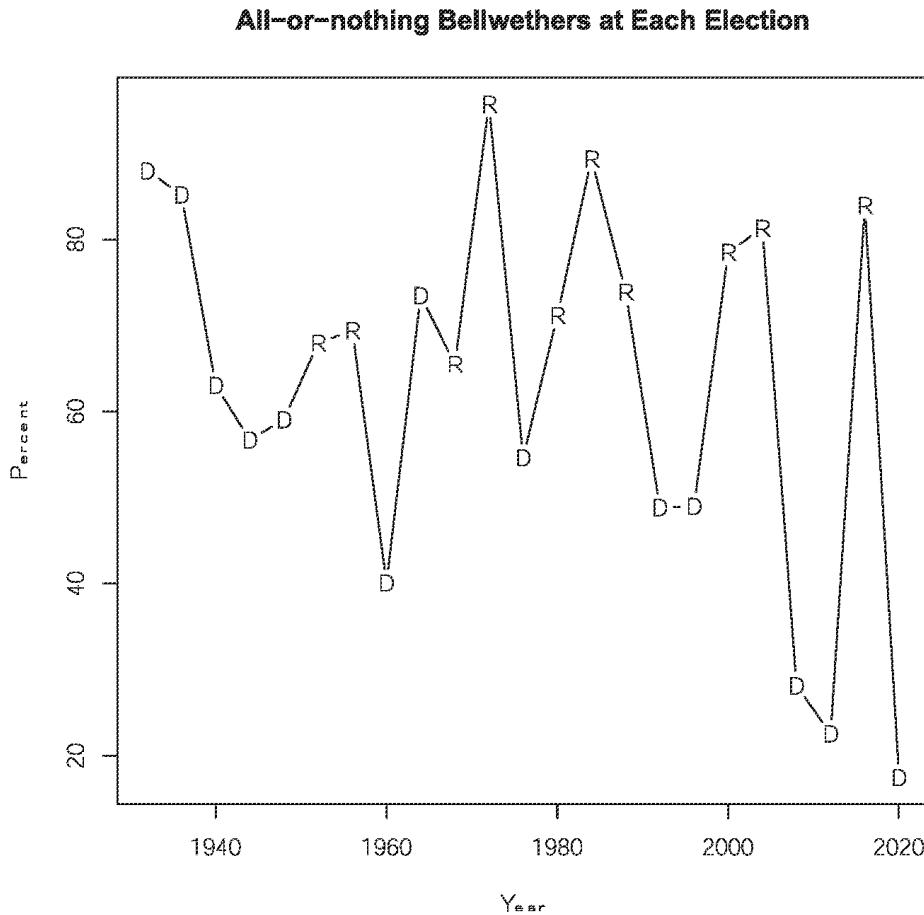


FIGURE 4. Percent of All Counties Selecting the Electoral College Winner at Each Presidential Election since 1932. Party of the winning presidential candidate is indicated by “D” for Democrat or “R” for Republican. Rs are far higher than Ds in recent elections due to the large number of Republican rural counties and the dominance of Democrats in urban areas.

Most barometric bellwethers earn their status because they are politically competitive, not because they seem to have more discerning voters and move with political tides.³

Figure 6 presents the percent of counties that qualify as barometric bellwethers in each election from 1932 to 2020. In comparison to all-or-nothing bellwethers (Figure 4), we see that barometric bellwethers are far less common. The election of 2016 saw the nadir of the barometric bellwether, with only 2.4% of counties falling within $\pm 2.5\%$ of the national popular two-party vote margin, which was 4.5%. In 1976—when Jimmy Carter beat Gerald Ford by just over 2 points—over 9% of counties were barometric bellwethers. Again, we must take national political shifts into account. Since 2000, the two-party margin of victory has averaged 3.5 points in the six presidential elections and ranged from half a percentage point (in 2000) to 7 percentage points in

³Notably, Wright (2009, 35) found that pivotal states in the Electoral College qualified as hard-fought, barometric bellwethers.

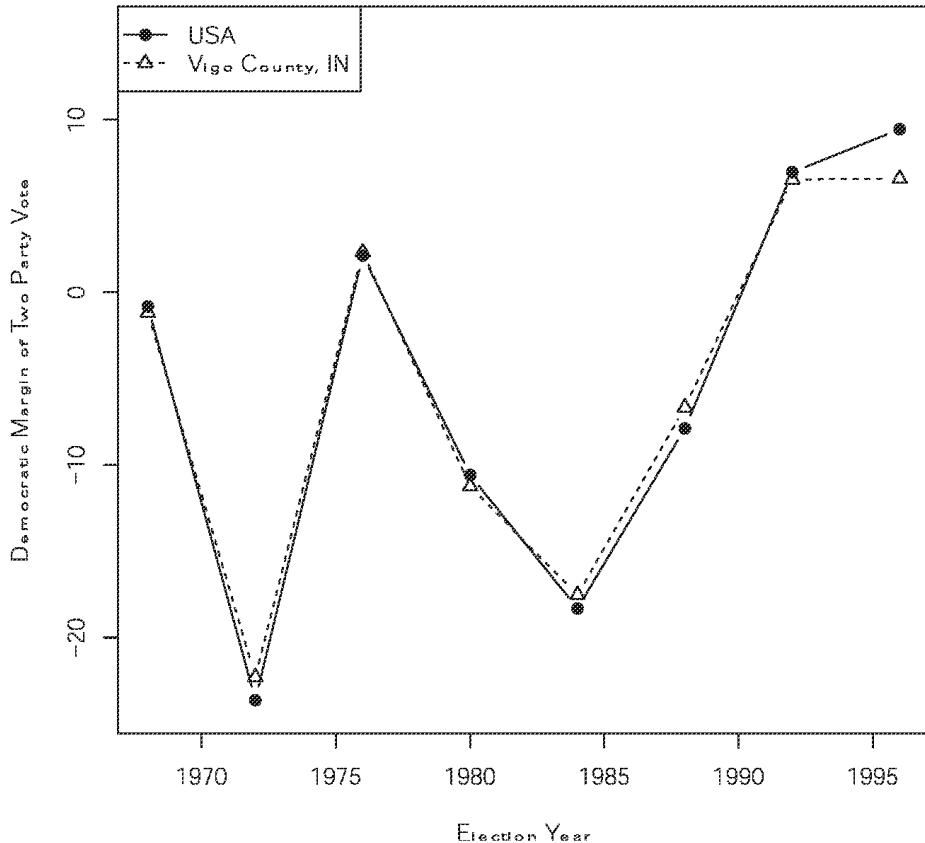


FIGURE 5. Example of a Barometric Bellwether.

2008. From 1976 to 1996, the average margin was 10.6 points and ranged from 7.0 to 18.3 points. Variability in national elections has dropped off precipitously since 2000. Forces such as geographic polarization have led to a steep drop-off in the share of persistent barometric bellwethers.

A third bellwether relaxes the standard even further. It considers bellwethers to be all locations that swing in the direction of the national vote but do not necessarily vote for the winning presidential candidate. For example, from 2016 to 2020, the Democratic margin of the vote shifted from 2.2 to 4.4, reflecting a Democratic swing of 2.2. We count a county as a swingometric bellwether if it falls within ± 2.5 points of this measure. In 2020, over 62% of counties fit this definition, having seen a Democratic swing ranging from -0.3 (i.e., a 0.3-point swing toward the GOP) to 4.7 points. A swingometric bellwether could consistently follow the national trends from election to election even while deviating from the national mean. For example, in 2020, Minnehaha County, South Dakota—home of Sioux Falls—had matched the national election-to-election swing over six elections across 24 years, even while supporting Republican candidates at

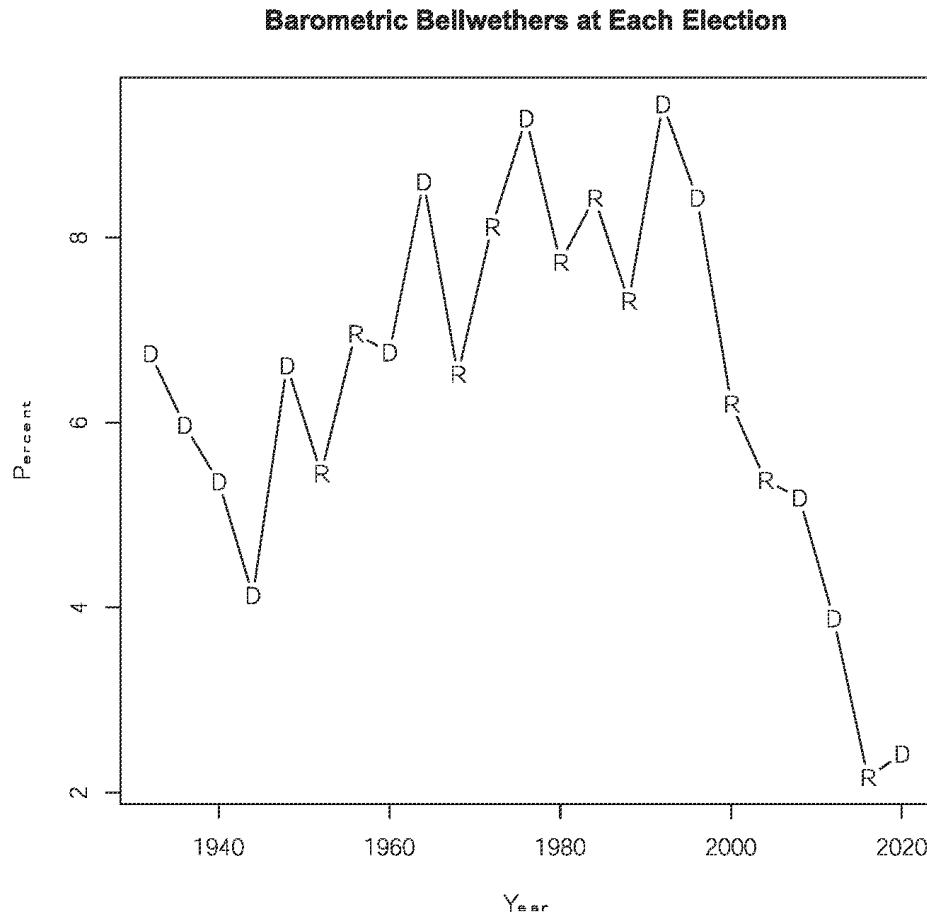


FIGURE 6. Percent of All Counties within ± 2.5 Points of the National Popular Vote at Each Presidential Election since 1932. Party of the winning presidential candidate is indicated by “D” for Democrat or “R” for Republican. The data show that in recent elections, the share of the percentage of swing locations has been greatly reduced, regardless of which party wins the presidency.

higher levels than the nation. We depict this trend in Figure 7, which shows Minnehaha's Democratic swing (depicted with triangles and a dashed line) closely matches the national Democratic swing (depicted with circles and a straight line).

By this definition of swing, then, we count bellwethers as those that move in the same direction as the national tide, and to a similar extent (within 2.5 points), from the previous election, no matter where they begin, and they do this consistently over a period of consecutive elections. If the swing toward the Democrats from one election to the next is +13 percentage points, a location counts as a bellwether if it starts at 32% Democratic and swings with the national tide to 45% (+13), or if it begins at 53% Democratic, and swings with the national tide to 66% (+13). Moreover, it can settle close to 13%, within 2.5 points on either side, and still count as a bellwether location by our definition. Figure 8

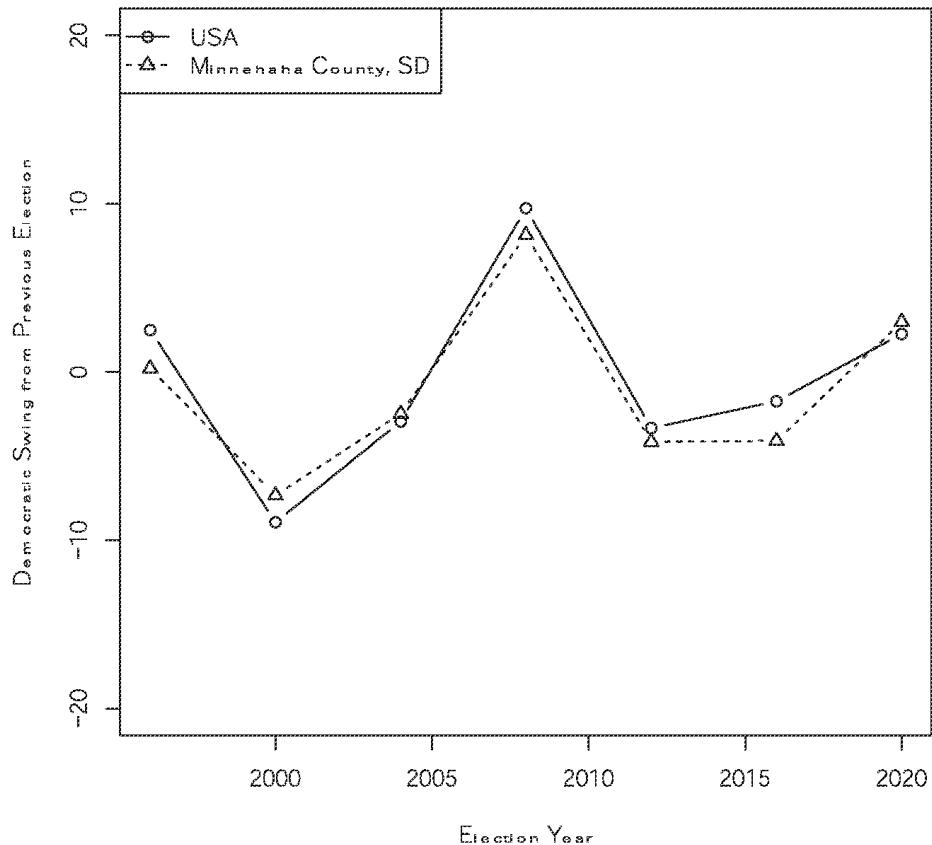


FIGURE 7. Example of a Swingometric Bellwether.

presents the percentage of counties that qualify as swingometric bellwethers over time. We again indicate the party of the winner of the Electoral College vote with a “D” for Democrat or “R” for Republican. Before 1980, swingometric bellwethers were relatively uncommon. An exception is in 1944, which sees very little swing from 1940 in the national vote and is FDR’s unprecedented fourth successful run for the presidency. Under the circumstances of such minimal electoral change, a large percentage of counties show changes about as small, meeting this bellwether criterion. The 1944 election is an all-time low for inter-election swing, and a peak in the percentage of swingometric counties, until 2016 and 2020. As we see in Figure 8, swingometric bellwethers are less common before 1980. If we drop 1944, the pre-1980 percentage of counties qualifying as swingometric bellwethers at the general election ranges from 6% to 22% of all counties. From 1980 on, the range was from a low of 8% to a high of 62% in 2020, suggesting that there has been real structural change in competition for the presidency. The median number of swingometric counties in general elections from 1980 to 2020 is 32% of all counties, while the median is 12% from 1932 to 1976, a marked difference.

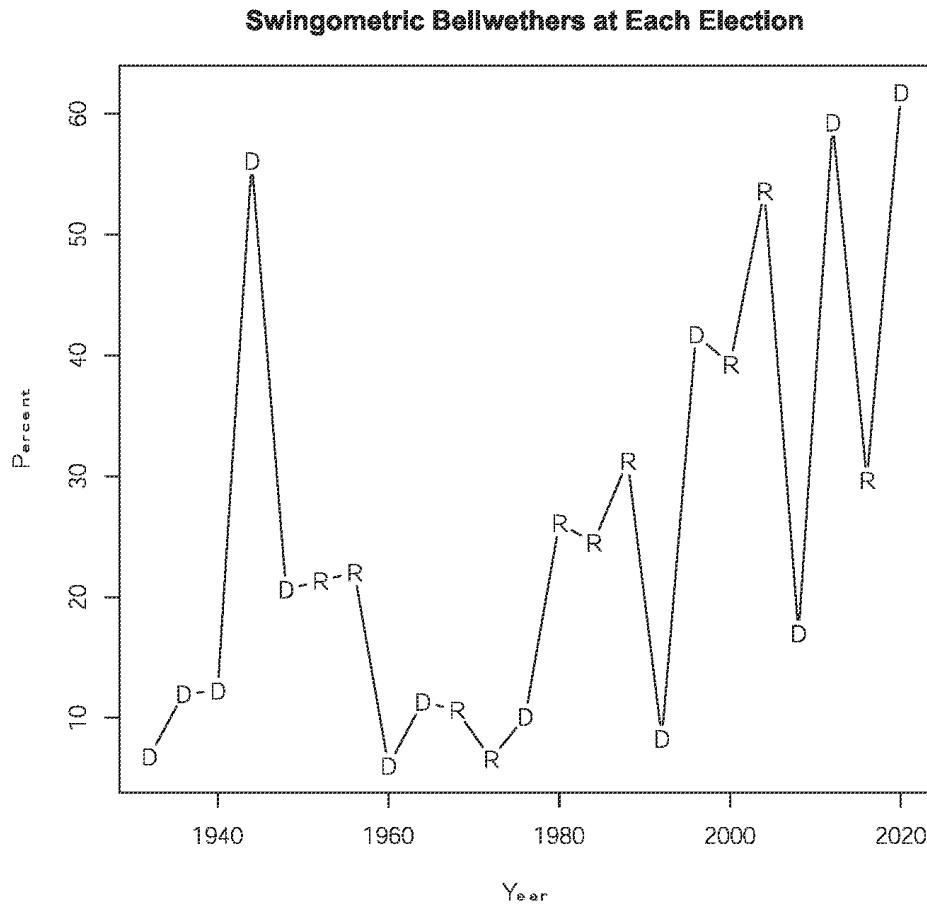


FIGURE 8. Percent of All Counties within ± 2.5 Points of the National Popular Vote Swing from the Previous Election for Each Presidential Election since 1932. Party of the winning presidential candidate is indicated by "D" for Democrat or "R" for Republican. The data show that in recent elections showing less inter-election swing, a large percentage of counties move in step with national political tides, regardless of which party wins the presidency.

The Role of Presidential Election Competition

The bellwether, notably, does not emerge and cannot be defined independently of the nature of ongoing presidential election competition between the major parties. This context is an essential realization because a common assumption is that bellwethers have representational properties because of the composition of their population. As other scholars have noted, however, the emergence and durability of bellwethers depend crucially on the structure of party competition for the presidency (Clayton 2019; Gronbeck 1984; Kondik 2016). In a period of Democratic dominance, such as the 1930s and 1940s, we find many strongly Democratic counties present among the emergent bellwether locations of that era. Once Republican prospects improved with the election of Eisenhower in 1952 and 1956 and the competitive performance of Richard Nixon in 1960, many of the more lopsided Democratic-leaning bellwether locales that resisted

the Republican comeback quickly vanished. In general, the emergence and disappearance of bellwether locales will depend on their local electoral features and the outcomes of presidential elections. Therefore, manifold forces lying well outside the boundaries of any particular place control the prevalence of bellwethers. To explain bellwether emergence and persistence across space and time, we must not only gather information about each locale but also study the closeness of national party competition and the partisan outcome.

Characteristics Compared to Non-Bellwethers

Determining whether bellwether locations are distinctive from other places across long spans of electoral history is distinct from whether bellwethers have good prediction records (Broh 1980). Although many probably do emerge based on chance, other scholars have found explanatory value in the movements of national presidential politics as well as the characteristics of the locations themselves (Zimny-Schmitt and Harris 2020). These studies are reminders that bellwether counties, however defined, usually stand out from other counties in socioeconomic and demographic terms (Broh 1980; Tufte and Sun 1975).

Journalists, pundits, and self-styled election analysts, as well as academic historians and political scientists, have all drawn on the bellwether concept to guide their study and commentary on voting and elections (Axelrod 2020; Fuente 2020; Mahoney 2018; Novak and Satullo 2020; Smith and Taylor 2018; Starr 2020). Focal locations such as Macomb County, Michigan, located directly north of Detroit, a swing county in a swing state, have been subject to scrutiny for a good reason. Since analysts cannot go everywhere, they need the valuable shortcut of a few cases that do not house surefire populations (Edsall and Edsall 1992; Greenberg 1996; Klemanski, Dulio, and Carr 2021; Sugrue 1997). Such locations are often large enough to matter in close statewide contests and may well point to the presence of undecided, cross-pressured, and late-deciding voters. What makes them especially interesting may be precisely that their final resting place on one side of a pending election is up for grabs, subject to chance, and cannot be readily forecast from looking back. Locations that are lopsidedly Republican or Democratic stoke little curiosity of this vein.

Most journalists or social scientists are less interested in making election forecasts, *per se*, and more focused on why voters in a peculiarly competitive location stand out from others elsewhere in a state or region. For the bellwether aficionado, studying these locales might produce knowledge and understanding that is broadly applicable elsewhere. Precise prediction seems like a lot to ask for, but it also seems like too little to expect. Some have suggested improving upon polling by sampling from bellwether locations as a supplement to random probability sampling (Paleologos and Wilson 2011; Wilson and Paleologos 2018). The proponents argue that such methods improve pre-election forecasts, and we do not address that here. Our more straightforward suggestion is that securing precise forecasts is a minor reason most

people look to bellwethers, despite the etymological origin and narrower use of the term in other fields.

Bellwethers and Swing Voters

Even if bellwethers do not make for precise forecasts, it is unlikely that they appear on election maps just by chance. And if they are not just accidental, coming to a better understanding of their distinctiveness is worthwhile. For instance, bellwether analysis might provide insight into classes of swing voters who are late deciders or exhibit ambivalence toward the major parties. Bellwether counties might point in the direction of bellwether voting blocs, perhaps acting as a convenient shortcut to knowing where they are concentrated. If the bellwether county houses sufficiently large groupings of undecideds, one may not need to go to the expense of conducting the densely sampled poll that would otherwise be required to locate them. Surely it is fallacious to assume that swing voting blocs reside in a county because it has been closely divided between major candidates in previous elections. It is at least equally plausible to presume that such locations are divided by two equally sized and intense partisan groups, as shown by recent research (Kinsella, McTague, and Raleigh 2021).

Any effort to identify bellwether counties with swing voting blocs needs to go the extra mile to discern why a location winds up close to the national election margins. There is a possibility that locations like Macomb County, Michigan, are widely studied because they really do contain puzzling blocs of voters—variously defined (Mayer 2007, 2012), not equally sized highly partisan blocs. In addition, there is the possibility that fluctuations in the local vote that influence bellwether status are related to levels of participation and not shifts in party preference (Hill 2017). Counties may wind up being included among bellwethers for meeting the criteria but not always because they are home to blocs of swing voters.

Bellwethers May Have Distinctive Locations

Generally, pollsters start with survey research as their means for identifying swing voting blocs and then go to see where these voters are concentrated, rather than beginning with observations of location aggregates and inferring their presence (Greenberg 1996). Understandings of swing voters as being late-deciding due to cross-pressure or ambivalence (Berelson, Lazarsfeld, and McPhee 1954; Box-Steffensmeier et al. 2015; Green 2020; Hillygus and Shields 2009; Lavine, Johnston, and Steenbergen 2012; Smidt 2015), for example, offer some guidance on where one might look for them. Late-deciding and ambivalent voters are more likely to be concentrated in battleground states than safe states (Box-Steffensmeier et al. 2015; Johnson 2005; Schultz and Jacob 2018) and, in recent elections, living in the suburbs rather than rural or urban areas (McKee and Teigen 2009). These voters can be pinpointed because ambivalence sometimes has a peculiar political context, a geography, associated with competitive campaigning and higher campaign spending (Keele and Wolak 2008).

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Moreover, well-educated voters contribute most to partisan cleavage (Wolfinger and Greenstein 1969), with high political information levels driving political polarization at the individual level (Zaller 1992, 2004).

Macomb County, Michigan, for instance, is a setting wherein recent times, ambivalence abounds. Culturally conservative white voters are found there, sympathetic to Republican currents, but they are not living in conditions of material abundance. Nor are they at the top of the state's 83 counties in educational attainment (though not ranking at rock bottom, either). Nearby locations in suburban Detroit are also sites of intriguing partisan swings (Dulio and Klemanski 2009, 2019). Apparently, large groups of these voters may have Democratic instincts on many economic issues but consider Republicans when they are primed with information raising the salience of cultural matters. Presumably, this ambivalence is heightened, and the vote decision delayed, in the presence of hard-fought campaigns (Scacco and Peacock 2013).

Others have commonly identified the geography of swing voting with the Rust Belt more generally, including politically indecisive locations (even if not bellwethers in the strictest sense) running from Pennsylvania across the Upper Midwest to Minnesota and Iowa (Damore, Lang, and Danielsen 2020; Farley 2019; Rozell 2018). These are places said to be associated with economic anxiety and revanchism, and their location is not an accident (Carnes and Lupu 2021; Farley 2019; Galston and Kamarck 2022; Goetz, Partridge, and Stephens 2018; Guest 2018; McQuarrie 2017; Morgan and Lee 2019; Muravchik and Shields 2020; Thaler and Grossmann 2018). They are sometimes described as having been "left behind"—the extent to which modern economic trends have passed them by, inclining them to be suspicious of free trade policies, and restrictionist on immigration (Essig et al. 2021; Goetz, Partridge, and Stephens 2018; McKay 2019). There remains sympathy for many basic tenets of social democracy, but a countervalent attitude of resentment toward the nonworking poor and the government programs that provide for them (Muravchik and Shields 2020, chap. 9). This peculiar collection of viewpoints appears to emanate from places with particular social and economic characteristics, not anchored in a placeless individual psychology, but in a geographically bounded social psychology (Johnston, Jones, and Manley 2019; Sances 2019; Ward et al. 2021). Much of this boils down to the idea that pivotal voters within states and counties matter most to bellwether status, and the settlement of pivotal voters, though not highly concentrated in a single state or county, is neither random nor uniform, either.

The Bellwether as Microcosm

Some view bellwether states and counties as worthy of attention because they match the nation on relevant shares of sizable and influential groups of voters. They may look like the nation in terms of racial composition, age distribution, wealth and poverty, inequality, urban–rural residence, and various other characteristics along which partisan cleavages form. This context is the main reason that Missouri has regularly been classified as a bellwether state (Brasfield 2016; Heppen 2011; Robertson 2004;

Troske and Haslag 2004). Various scholars have also identified Ohio (Kondik 2016), Pennsylvania (Schultz and Jacob 2018), and Illinois (Jackson 2004; MacRae and Meldrum 1960; Przybylski 1976) as bellwether states at certain points in recent history, principally because they were thought to resemble the nation in socioeconomic and demographic composition, and therefore political mood (Lewis-Beck 1985; Obeng 2016). Related debates have raged about whether Iowa and New Hampshire should have a privileged status in the presidential nomination process because of their lack of representativeness of the nation (Lewis-Beck and Squire 2009). Few researchers have sought to explain local bellwether status by systematically comparing county economic and demographic characteristics to the same national (or state) measures (but see Cook and Latterman 2011).

Casual inspection of lists of bellwether counties casts doubt on local bellwether status being contingent upon matching national distributions on key variables. For example, one long-standing bellwether, Vigo County, Indiana (Terre Haute), did not resemble the nation as late as 2016 (Obeng 2016). Neither did Valencia County, New Mexico (Los Lunas), nor Northhampton County, Pennsylvania (Easton), though perhaps they may have been a closer match to the national demographic mix at some point in the past.

In the research we report here, we have not found very persuasive evidence that bellwether locations present anything of a microcosm. Typically, all-or-nothing bellwethers over 10 elections are significantly less densely populated (though not necessarily “rural”), are less racially diverse, and have higher voter turnout than other counties. Bellwether counties are, on average, 95% white, while non-bellwether counties are, on average, 86% white. A statistically significant difference ($p \leq 0.001$) remains when looking at more recent presidential elections of the last 40 years. Over this same period, they are also less well educated and have lower income than non-bellwethers, and to a statistically significant degree on both counts. Remarkably, bellwether counties also tend to exhibit higher turnout than non-bellwether counties. Since 1972, the first election where 18-year-olds could vote, the all-or-nothing bellwether counties have seen an average of 55.8% of voting-age turnout while non-bellwethers have seen 54.6% turnout—a statistically significant difference ($p \leq 0.03$). Since 1934, we have most frequently found bellwethers in the West and least often in the South. Since 1980, the all-or-nothing bellwether counties have most frequently been found in the Upper Midwest in states like Iowa, Illinois, Indiana, Nebraska, and Ohio.

The Predictive Power of Bellwethers

Next, we consider the predictive power of bellwethers. Much of the fascination around them is that they are thought to have predictive power about the electoral mood of the country. This section considers whether past performance as an all-or-nothing, barometric, or swingometric bellwether predicts the Electoral College vote winner. At each election, we model whether past performance as a bellwether predicts that a county

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will be a bellwether in the current election. We consider various time horizons starting at just one previous election. Each model is a logistic regression model where the dependent variable is an indicator for whether the county is a bellwether (all-or-nothing, barometric, or swingometric). Each model also includes indicators for the election year and clusters standard errors at the county level.

Table 1 presents our model for all-or-nothing bellwethers. In most models, being an all-or-nothing bellwether over several elections is a positive predictor of picking the Electoral College winner. Interestingly, two previous successful picks of the winner are negatively associated with predicting the winner of a current election. Likewise, picking five in a row is also negatively associated with predicting a current winner. Otherwise, being an all-or-nothing bellwether is positively associated with choosing the winning side. The coefficients are positive and statistically significant.

The substantive effect sizes are modest. For example, in column 7 of Table 1, we see the coefficient of 0.28 for being an all-or-nothing bellwether in seven consecutive elections. That translates into a 5-point increase (i.e., an increase of 0.05 in the probability of picking the winner in a presidential election. As we extend the number of consecutive elections, the number of bellwethers dwindle though the predictive power does not improve. For example, a county that has predicted the last 10 elections will do only about 3 points better than other locales in predicting the winner of the next election.

We consider those counties that correctly approximated the national popular vote for our barometric results. We considered a county a barometer if it was within 2.5 points (plus or minus) of the two-party vote margin. We again consider a variety of time periods for which a barometric bellwether correctly mirrors the national popular vote. Unlike all-or-nothing bellwethers, barometers do not necessarily need to pick the winner exactly. They only need to mirror the national results by having their margin of victory fall within 2.5 points of the national margin of victory.

Table 2 again presents logistic regressions, including indicators for the election year and standard errors clustered at the county level. We examine barometric bellwethers for one, two, and three elections. Notably, there are very few barometric bellwethers for more than three elections. For example, 2020 saw only three counties that had been barometers over the previous three elections. Since 1934, six elections have seen no counties as barometers over four elections.

Although scarce beyond a couple of elections, barometric bellwethers show a substantial improvement over all-or-nothing bellwethers in predicting election outcomes. Moreover, we see that the coefficients are all positive and statistically significant in our models. For example, a county that came within ± 2.5 points of the national popular vote over three elections has an increase of 0.21 in the probability of being a barometric bellwether the next election (based on predicted probabilities setting the election year to 1980). While the improvement in predictive power is striking, barometric bellwethers do not necessarily identify the winner, especially in the closest elections and those where the popular vote and Electoral College vote winners may not be the same.

TABLE 1
Do Past All-or-Nothing Bellwethers Predict Future All-or-Nothing Bellwethers?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bellwether over one election	0.35*** (0.02)									
Bellwether over two elections		-0.44*** (0.02)								
Bellwether over three elections			0.04* (0.02)							
Bellwether over four elections				0.22*** (0.02)						
Bellwether over five elections					-0.08** (0.03)					
Bellwether over six elections						0.19*** (0.03)				
Bellwether over seven elections							0.28*** (0.03)			
Bellwether over eight elections								0.25*** (0.04)		
Bellwether over nine elections									0.20*** (0.04)	
Bellwether over 10 elect										0.17** (0.05)
Intercept	1.75*** (0.06)	2.24*** (0.06)	1.95*** (0.06)	1.91*** (0.06)	1.96*** (0.06)	1.88*** (0.06)	1.81*** (0.06)	1.80*** (0.06)	1.81*** (0.06)	1.83*** (0.06)
Num. obs.	71,853	71,769	71,652	71,498	71,292	70,972	70,505	69,997	69,472	68,893

Note: Logistic regression models with standard errors clustered on counties. Indicators for the election year are included in each model but not presented in the tabular results.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

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TABLE 2
Do Past Barometric Bellwethers Predict Future Barometric Bellwethers?

	(1)	(2)	(3)
Barometric (over one election, ± 2.5 pts.)	1.23*** (0.05)		
Barometric (over two elections, ± 2.5 pts.)		1.40*** (0.10)	
Barometric (over three elections, ± 2.5 pts.)			1.81*** (0.19)
Intercept	-2.77*** (0.07)	-2.64*** (0.07)	-2.62*** (0.07)
Num. obs.	71,871	71,797	71,690

Note: Logistic regression models with standard errors clustered on counties. Indicators for the election year are included in each model but not presented in the tabular results.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Finally, we consider the predictive power of swingometric bellwethers. We consider whether a county's status as a swingometric bellwether in the past is predictive of being a swingometric bellwether in the future. We ask, are there counties that consistently match the national election-to-election swing? Table 3 presents these models. We include estimates for swingometric bellwethers over one, two, and three elections. As with barometric bellwethers, there are so few swingometric bellwethers over four or more elections that we do not consider those models. We again include fixed effects for the election year but do not present them in the tabular results.

Our empirical analysis in Table 3 reveals no relationship between being a swingometric bellwether in the past and being one in the present. Matching the national election-to-election swing is not predictive of doing so at the next election. Our models show that none of the coefficients are statistically significant. They are also

TABLE 3
Do Past Swingometric Bellwethers Predict Future Swingometric Bellwethers?

	(1)	(2)	(3)
Swingometric (over one election, ± 2.5 pts.)	-0.02 (0.02)		
Swingometric (over two elections, ± 2.5 pts.)		0.01 (0.04)	
Swingometric (over three elections, ± 2.5 pts.)			-0.04 (0.08)
Intercept	-2.63*** (0.07)	-2.63*** (0.07)	-2.62*** (0.07)
Num. obs.	71,797	71,690	71,548

Note: Logistic regression models with standard errors clustered on counties. Indicators for the election year are included in each model but not presented in the tabular results.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

substantively close to zero. Reliably matching the national swing in the past does not beget following the national trajectory in the future.

Predictive Power across Time

In the previous section, we examined whether past bellwethers were predictive of present bellwethers in elections from 1932 to 2020. We now consider whether these relationships might vary across time. To explore this question, we conduct an election-by-election analysis similar to the analyses in the previous section.

In Figure 9, we consider the predictive power of all-or-nothing bellwethers over time. We model whether a county supports the Electoral College winner given its past performance as an all-or-nothing bellwether. Specifically, we include an indicator for whether a county had correctly picked the Electoral College winner in the seven previous presidential elections. Our selection of this time frame is based on the results in

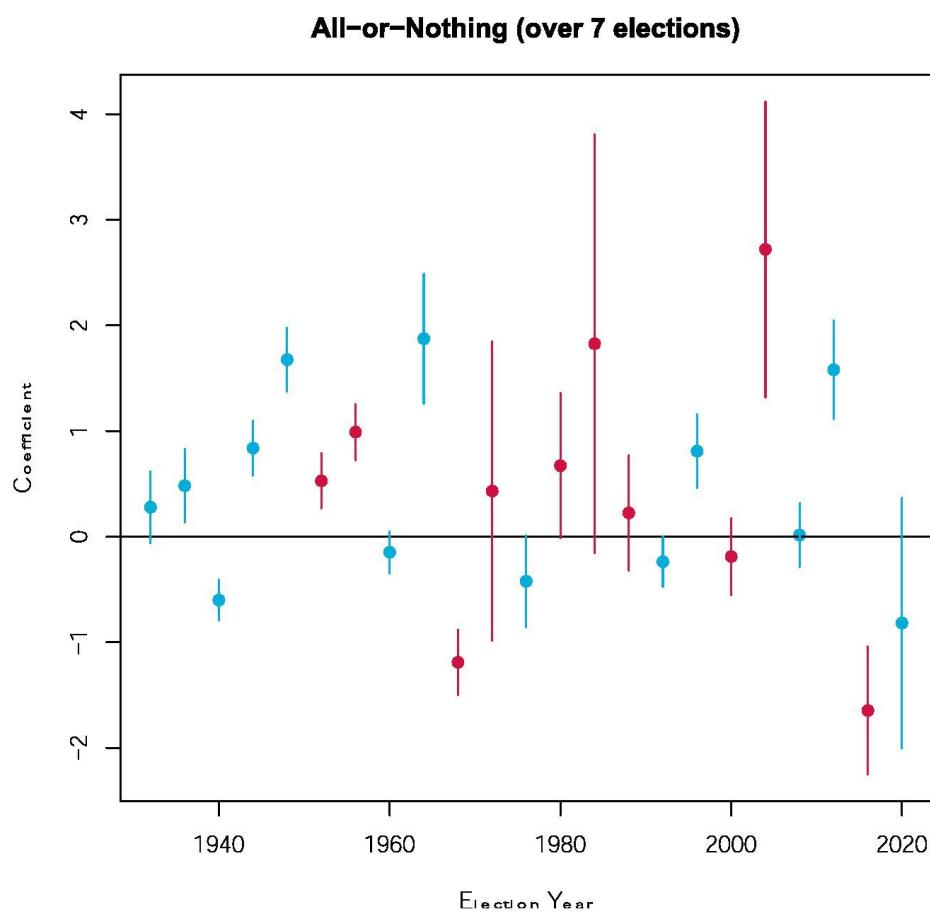


FIGURE 9. Points Represent Estimated Coefficient for All-or-Nothing Bellwether as a Predictor of National Electoral College Vote Winner at Each Presidential Election. Line segments represent 95% confidence estimates around the coefficient.

Table 1, which showed that an all-or-nothing bellwether over seven elections was the strongest predictor of being a future bellwether.

We conduct a logistic regression for each election and plot the coefficient along the x -axis of Figure 9. The line segments around the estimate represent the 95% confidence interval. In years where the Democratic candidate was the Electoral College winner, the estimate is plotted in blue. When there was a Republican winner, the estimate is shown in red.

For 15 of the 23 elections, the coefficient is positive. In nine of 23 cases, the coefficient is positive, and the lower bound of the 95% confidence interval falls above zero. There is a negative and statistically significant relationship between being a past bellwether and picking the winner of a general election in four cases. Taken as a whole, it is difficult to identify any consistent time trend in the predictive power of all-or-nothing bellwethers.

Though we include election year fixed effects, we could likely develop additional explanatory variables. For example, accounting for long-term forces like political

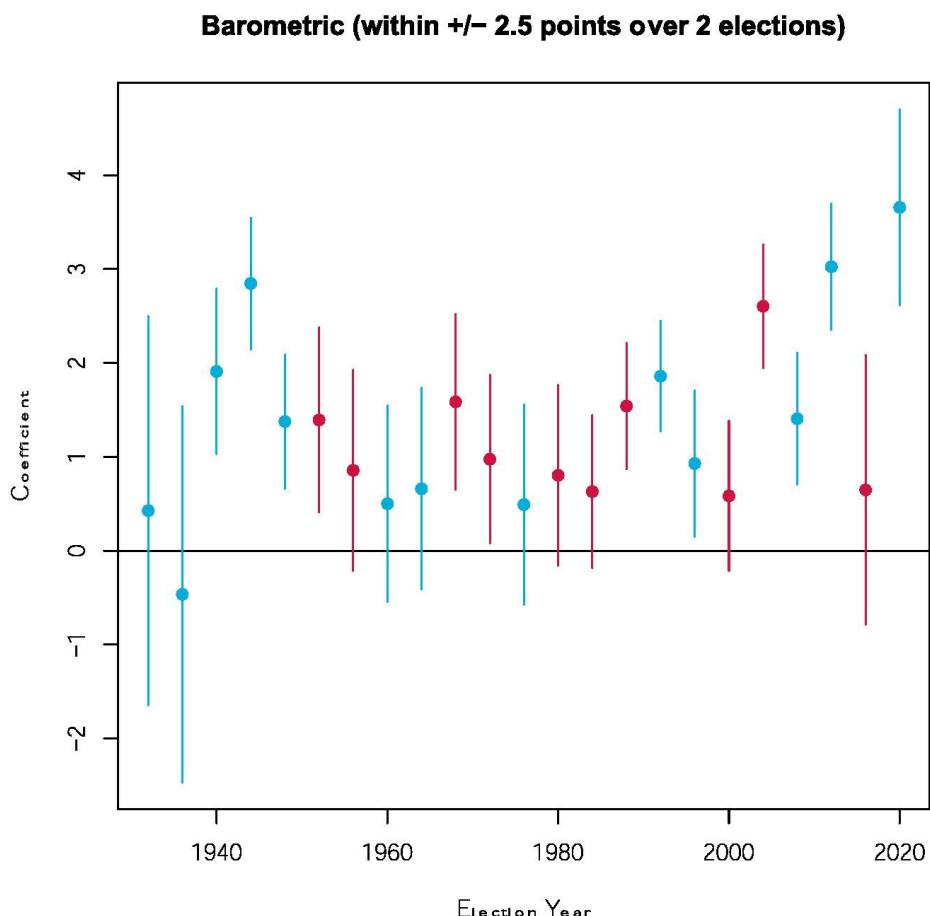


FIGURE 10. Points Represent Estimated Coefficient for Past Barometric Bellwether as a Predictor of Present Barometric Bellwether at Each Presidential Election. Line segments represent 95% confidence estimates around the coefficient.

realignments could perhaps explain the data points in Figure 9. But all-or-nothing bellwethers appear to be a very inconsistent predictor of what will happen at the next election.

Figure 10 is based on a similar analysis for barometric bellwethers. Again, we consider a barometric bellwether as within 2.5 points of the national vote. Our time horizon in this analysis is over the previous two elections. The point is to examine whether past barometric bellwethers predict current barometric bellwethers at each election. As before, we conduct a logistic regression for each election and plot the coefficients along the x -axis. The line segments around the estimate represent the 95% confidence interval, with Republican elections in red and Democratic elections in blue. Here, we see that 22 out of 23 models yield positive coefficients, with 13 out of 23 models yielding statistically significant and positive results. In 2020, we saw the highest estimated coefficient. In substantive terms, a county that fell within 2.5 points of the national vote in 2012 and 2016 had a probability of 0.47 of doing the same in 2020 (the 95% confidence interval spans from 0.24 to 0.71). If the county was not a barometric

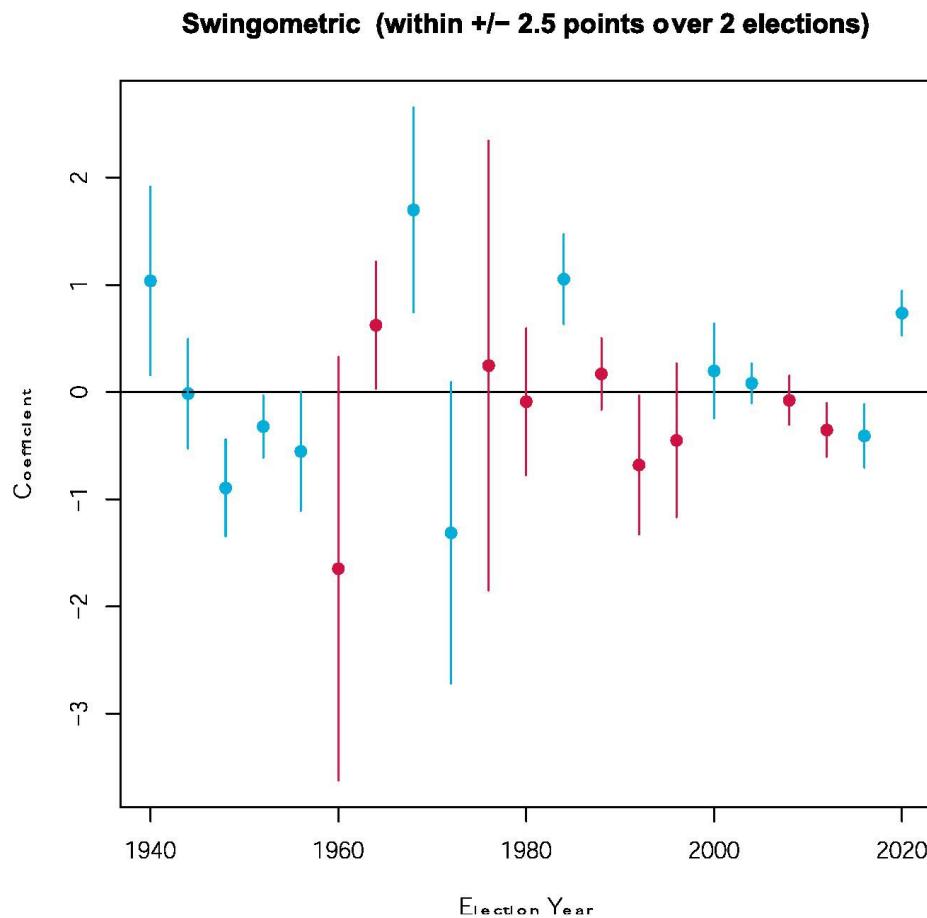


FIGURE 11. Points Represent Estimated Coefficient for Past Swingometric Bellwether as a Predictor of Present Swingometric Bellwether. Line segments represent 95% confidence estimates around the coefficient.

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bellwether, its probability of being one in 2020 was very low at 0.02 (the 95% confidence interval spans from 0.02 to 0.03).

Barometric bellwethers are much better harbingers of future elections than the all-or-nothing ones. This relationship seems to be strengthening in more recent elections, perhaps due to less variation in the national popular vote. With less dramatic swings, counties that previously matched the national popular vote are more likely to continue to do so in the future. For the election night prognosticator, when a county that has previously matched the national popular vote appears to break strongly for a candidate of one party, it is a more reliable indicator than the classic all-or-nothing bellwether of what is to come.

Finally, Figure 11 shows a similar analysis predicting swingometric bellwethers. Here, we define a swingometric bellwether as having matched the election-to-election national swing for the two previous elections. Because of issues with collinearity, we begin with the 1940 general election. Eleven coefficients are negative and 10 are positive in these 21 elections. There is a positive and statistically significant relationship between past swingometric bellwethers and the current elections in five elections. There are also five elections where there is a statistically significant and negative relationship. As with the full swingometric results, there is little systematic change over time in the predictive power of swingometric locations.

As with the overall models, past swingometric bellwethers do not predict future ones. Since 1992, past swingometric bellwethers have been likely to be unrelated or negatively related to future swingometric bellwethers. The election of 2020 is an exception, as counties that matched the national election swing from 2008 to 2012 and 2012 to 2016 were likely to match the swing from 2016 to 2020.

Conclusion

Nearly a half century ago, Tufte and Sun (1975, 17) reached a pessimistic conclusion about bellwethers:

Are there bellwether electoral districts? No, at least not if they are chosen before the fact. Some counties are more barometric than others, both in retrospect and in prospect. Some counties are more swingometric than others, both in retrospect and in prospect. While spectacular in their postdictions, these counties are not sufficiently barometric or swingometric in their predictions to provide a precise or reliable guide to upcoming elections.

Our conclusions based on the inclusion of another 50 years of data are of a similar vein. All-or-nothing and swingometric bellwethers are not reliable predictors of the future. Drawing upon a handful of bellwether locations to make this prediction is as much an error today as it was in the early 1970s.

Even so, the bellwether location may still create a compelling journalistic narrative, well worth reading. The assemblages of voters in these locations, their

geography and social life, and their changing outlook over the course of a campaign merit scrutiny for reasons other than determining whether they forecast national outcomes. There do appear to be more reliable counties that act as barometers—some are consistently closer to the national result than others. They may not be perfect predictors, but they are still siding with the winner at rates well above chance expectations. For instance, the fact that over a long span of time they contain populations that are less well educated than the non-bellwethers is an intriguing clue. We have long known that well-educated populations are more informed and more partisan, contributing more to partisan cleavage than those with less education, so it makes perfect sense that locales that shift with national party tides would be populated with voters who are less educated and less ideologically possessed than elsewhere (Wolfinger and Greenstein 1969; Zaller 2004). From the political information perspective so influential in the study of mass behavior over the last several decades, it makes sense that white voters with less than a college degree, and the places they live, would be the focus of attention of so much strategic thinking on swing voting (Galston and Kamarck 2022; Grimmer and Marble 2019; Muravchik and Shields 2020). “Floaters,” as they have often been called, do seem to inhabit certain places, though our evidence suggests that the number of those places varies widely over time, showing steep decline in the past two decades.

There is little question that bellwether locations have stood out from the noisy accidental background of U.S. elections, but as our research has shown, we would likely be mistaken to bet on it next time (Broh 1980, 570). Having conceded that point, we would suggest that the barometric bellwethers, in particular, are worth ongoing study for what they may tell us about the presence of swing constituencies and the changing nature of party competition for the presidency. The scarcity of research on this subject is hardly justified based on the analysis presented here and the previous works we have cited. We encourage additional research to interrogate these relationships.

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